B.E. Eighth Semester (Computer Science & Engineering) (CGS)

10352 : Artificial Intelligence : 8 KS 01

P. Pages : 2 | AU - 3012

Time : Three Hours | Max. Marks : 80

Notes : 1. All question carry marks as indicated.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.

1. a) What is AI? Specify areas of Artificial Intelligence. 6

b) Explain the strategy for possible win for one player in the Tic-Tac-Toe game when the board layout as magic square Each row, column and diagonals add to 15. 7

OR

2. a) Describe and explain state space for water Jug problem. 6

b) What are the problem characteristics? Explain the property "Can solution steps be ignored or undone?" Illustrate with 8-Puzzle problem. 7

3. a) What is heuristic function? Thus define a heuristic function for the 8- Puzzle game. 7

b) Describe and explain the best-first search algorithm. 6

OR

4. a) Differentiate between forward and backward reasoning. 6

b) Describe and explain the control strategy for Depth- first and Breadth- first search. 7

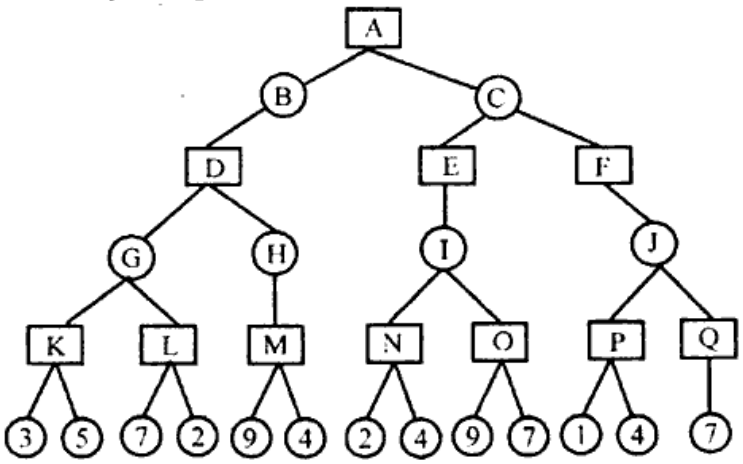
5. a) What are the properties of alpha-beta pruning? Hence justify below any Max node having alpha-value greater than beta-value of an ancestor. 7

b) Define and explain waiting for quiescence and using book moves. 7

OR

6. a) What is game playing? Explain the minimax procedure for two player game. 7

b) Illustrate the alpha- beta pruning for the following game tree. 7



7. a) Explain the process of augmentation with computable function and predicates. Justify with suitable example. 7

b) Write facts and rules for the following set of sentences and Explain resolution by refutation. 7

i) Marcus was a people.

ii) Marcus was Pompeian.

iii) All Pompeian were Romans.

iv) Caesar was ruler.

v) All Romans were either loyal to Caesar or hated him.

vi) Everyone is loyal to someone.

vii) People only try to assassinate ruler they are not loyal to.

viii) Marcus tried to assassinate Caesar.

OR

8. a) How are simple facts represented in prepositional logic? Explain with suitable example. 7

b) Convert the following expression into CNF. 7
$R \leftrightarrow (P \vee Q)$

9. a) What are the four declarative mechanisms for representing knowledge. 6

b) What is semantic nets? Explain binary representation in semantic nets. 7

OR

10. a) What are three important approaches in finding the right structure. 6

b) Explain reasoning with knowledge in conceptual dependency. 7

11. a) Explain understanding sentences with syntax, semantics and pragmatic analysis. 6

b) Explain dialog understanding thus describe solution with effective dialogue understanding system. 7

OR

12. a) What is natural langu ncepts of understanding. 6

b) What is case gramma combined? 7